UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

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MEMORANDUM:

SUBJECT: Office of Pesticide Programs List of Chemicals Evaluated for Carcinogenic Potential

FROM: William L. Burnam, Chief
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TO: Division Director HED, RD, SRRD and EFED
Associate Directors, HED
Branch Chiefs, HED

The attached list provides a quick overview of compounds evaluated for carcinogenicity by the Health Effects Division (HED) of the Office of Pesticide Programs (OPP). Chemicals evaluated by other review groups are listed as well and HED looks to these evaluations until an internal HED evaluation has been performed. Since the evaluation of many of these chemicals is an ongoing process, the information on this list may change and become out of date, i.e., the classification and Q_1* may change. Therefore, the list should not be used as the sole reference, without checking on the present status of a compound. Updated lists will be distributed in the future on a semi-annual basis.

Unless otherwise indicated, the classification of chemicals is based on the HED carcinogenicity peer review process or the HED hazard identification assessment review process, applying the Agency guidelines for carcinogenicity assessment. Evaluations by other groups are indicated by their acronyms: Cancer Assessment Group (CAG), Carcinogen Risk Assessment Verification Endeavor (CRAVE), International Agency for Research on Cancer, World Health Organization (IARC), Office of Research and Development and U.S. EPA (ORD). For those chemicals where different groups suggested different classifications, the "final" OPP classification is listed under the column "Current OPP Classification". The Potency (Q_1*), unless otherwise indicated, is based on the oral route. The units for the oral and inhalation Q_1* are $(mg/kg/day)^{-1}$ and $(\mu g/cu.m)^{-1}$, respectively.

If any corrections are necessary or further information is required please contact Rick Whiting (Phone: 703-305-5473; Email: whiting.rick@epa.gov) or me (Phone: 703-305-6193; Email: burnam.william@epa.gov).

1986 EPA WEIGHT-OF-THE EVIDENCE CATEGORIES	
Group A	Human carcinogen
Group B	Probable human carcinogen
Group B1	Agents for which there is limited evidence of carcinogenicity from epidemiologic studies.
Group B2	Agents for which there is sufficient evidence from animal studies and for which there is inadequate evidence or no data from epidemiologic studies
Group C	Possible human carcinogen
Group D	Not classifiable as to human carcinogenicity
Group E	Evidence of noncarcinogenicity for humans

1996 PROPOSED EPA WEIGHT-OF-THE EVIDENCE CATEGORIES	
Known/Likely	This category of descriptors is appropriate when the available tumor effects and other key data are adequate to convincingly demonstrate carcinogenic potential for humans; it includes: • Agents known to be carcinogenic in humans based on either epidemiologic evidence of a combination of epidemiologic and experimental evidence, demonstrating causality between human exposure and cancer, • Agents that should be treated as if they were known human carcinogens, based on a combination of epidemiologic data showing a plausible causal association (not demonstrating it definitively) and strong experimental evidence. • Agents that are likely to produce cancer in humans due to the production or anticipated production of tumors by modes of action that are relevant or assumed to be relevant to human carcinogenicity. Modifying descriptors for particularly high or low ranking in the "known/likely" group can be applied based on scientific judgement and experience and are as follows: • agents that are likely to produce cancer in humans based on data that are at the high end of the weights of evidence typical of this group, • agents that are likely to produce cancer in humans based on data that are at the low end of the weights of evidence typical of this group.
Cannot Be Determined	This category of descriptors is appropriate when available tumor effects or other key data are suggestive or conflicting or limited in quantity and, thus, are not adequate to convincingly demonstrate carcinogenic potential for humans. In general, further agent specific and generic research and testing are needed to be able to describe human carcinogenic potential. The descriptor cannot be determined is used with a subdescriptor that captures the rationale: • agents whose carcinogenic potential cannot be determined, but for which there is suggestive evidence that raises concern for carcinogenic effects, • agents whose carcinogenic potential cannot be determined because the existing evidence is composed of conflicting data (e.g., some evidence is suggestive of carcinogenic effects, but other equally pertinent evidence does not confirm any concern), • agents whose carcinogenic potential cannot be determined because there are

	inadequate data to perform an assessment, • agents whose carcinogenic potential cannot be determined because no data are available to perform an assessment.
Not Likely	This is the appropriate descriptor when experimental evidence is satisfactory for deciding that there is no basis for human hazard concern, as follows (in the absence of human data suggesting a potential for cancer effects): • agents not likely to be carcinogenic to humans because they have been evaluated in at least two well conducted studies in two appropriate animal species without demonstrating carcinogenic effects, • agents not likely to be carcinogenic to humans because they have been appropriately evaluated in animals and show only carcinogenic effects that have been shown not to be relevant to humans (e.g., showing only effects in the male rat kidney due to accumulation of $alpha_{2u}$-globulin), • agents not likely to be carcinogenic to humans when carcinogenicity is dose or route dependent. For instance, not likely below a certain dose range (categorized as likely by another route of exposure). To qualify, agents will have been appropriately evaluated in animal studies and the only effects show a dose range or route limitation or a route limitation is otherwise shown by empirical data. • agents not likely to be carcinogenic to humans based on extensive human experience that demonstrates lack of effect (e.g., phenobarbital).

1999 PROPOSED EPA WEIGHT-OF-THE EVIDENCE CATEGORIES	
Carcinogenic To Humans	This descriptor is appropriate when there is convincing epidemiologic evidence demonstrating causality between human exposure and cancer. This descriptor is also appropriate when there is an absence of conclusive epidemiologic evidence to clearly establish a cause and effect relationship between human exposure and cancer, but there is compelling evidence of carcinogenicity in animals and mechanistic information in animals and humans demonstrating similar mode(s) of carcinogenic action. It is used when all of the following conditions are met: • There is evidence in a human population(s) of association of exposure to the agent with cancer, but not enough to show a causal association, and • There is extensive evidence of carcinogenicity, and • The mode(s) of carcinogenic action and associated key events have been identified in animals, and • The keys events that precede the cancer response in animals have been observed in the human population(s) that also shows evidence of an association of exposure to the agent with cancer.

Likely To be Carcinogenic To Humans	This descriptor is appropriate when the available tumor effects and other key data are adequate to demonstrate carcinogenic potential to humans. Adequate data are within a spectrum. At one end is evidence for an association between human exposure to the agent and cancer and strong experimental evidence of carcinogenicity in animals; at the other, with no human data, the weight of experimental evidence shows animal carcinogenicity by a mode or modes of action that are relevant or assumed to be relevant to humans.
Suggestive Evidence of Carcinogenicity, but Not Sufficient to Assess Human Carcinogenic Potential	This descriptor is appropriate when the evidence from human or animal data is suggestive of carcinogenicity, which raises a concern for carcinogenic effects but is judged not sufficient for a conclusion as to human carcinogenic potential. Examples of such evidence may include: a marginal increase in tumors that may be exposure-related, or evidence is observed only in a single study, or the only evidence is limited to certain high background tumors in one sex of one species. Dose-response assessment is not indicated for these agents. Further studies would be needed to determine human carcinogenic potential.
Data Are Inadequate for An Assessment of Human Carcinogenic Potential	This descriptor is used when available data are judged inadequate to perform an assessment. This includes a case when there is a lack of pertinent or useful data or when existing evidence is conflicting, e.g., some evidence is suggestive of carcinogenic effects, but other equally pertinent evidence does not confirm a concern.
Not Likely To Be Carcinogenic To Humans	This descriptor is used when the available data are considered robust for deciding that there is no basis for human hazard concern. The judgement may be based on – • Extensive human experience that demonstrates lack of carcinogenic effect (e.g., phenobarbital) • Animal evidence that demonstrates lack of carcinogenic effect in at least two well-designed and well conducted studies in two appropriate animal species (in the absence of human data suggesting a potential for cancer effects). • Extensive experimental evidence showing that the only carcinogenic effects observed in animals are not considered relevant to humans (e.g., showing only effects in the male rat kidney due to accumulation of α2u-globulin). • Evidence that carcinogenic effects are not likely by a particular route of exposure. • Evidence that carcinogenic effects are not anticipated below a defined dose range.

IARC CATEGORIES	
Group 1	The agent (mixture) is carcinogenic to humans
Group 2A	The agent (mixture) is probably carcinogenic to human
Group 2B	The agent (mixture) is possibly carcinogenic to humans
Group 3	The agent (mixture, exposure circumstance) is not classifiable as to its carcinogenicity
Group 4	The agent (mixture, exposure circumstance) is probably not carcinogenic to humans

ACRONYMS	
2/3, 3/4	This scaling factor converts the unit risk from animals to humans. The 3/4's (2/3) scaling factor could be defined as mg chemical per kg animal body weight raised to the 3/4's per day cross-species scaling factor. It would be written as: mg chemical/kg animal body weight ^ ¾ / day. The 3/4's scaling factor is now used instead of the 2/3.
CAG	Cancer Assessment Group
CARC	HED Cancer Assessment Review Committee
CRAVE	Carcinogen Risk Assessment Verification Endeavor
Def. or Defer.	Deferred
F	Female
HCPRC	Health Effects Division Carcinogenicity Peer Review Committee
HAZID or HIARC	Hazard Identification Assessment Review Committee
HED	Health Effects Division
(I)	Inhalation Q_1* (ug/cu.m) $^{-1}$
IARC	International Agency for Research on Cancer, World Health Organization
Int.	Interim
IRIS	Integrated Risk Information System (http://www.epa.gov/iris/)
M	Male
MOE	Margin of Exposure
(O)	Oral Q_1* (mg/kg/day) $^{-1}$
OHEA	Office of Health and Environmental Assessment, Office of Research and Development
OPP	Office of Pesticide Programs
ORD	Office of Research and Development
Pending	Pending
Q* or (q)	Cancer Potency Q_1* value [Oral - (mg/kg/day) $^{-1}$ and Inhalation (ug/cu.m) $^{-1}$]
RFDC	Health Effects Division Reference Dose/Peer Review Committee
SAB	Scientific Advisory Board
SAP	FIFRA Scientific Advisory Panel

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
2,4-D CAS No. 94-75-7 EPA Chem Code: 030001	D	Brain astrocytomas; F344/CrL-Br rats (M)		
Comments: Classification pending repeat of studies & additional epidemiological data. [Syn. 2,4-Dichlorphenoxyacetic acid]				
2-Benzyl-4-chlorophenol CAS No. 120-32-1 EPA Chem Code: 062201	C	Renal tubule combined adenomas/carcinomas; B6C3F1 mice (M). Renal transitional cell carcinomas; F344/N rats (F)		
Comments: [Syn. OBCP, o-Benzyl-p-chlorophenol]				
AC 263222 (Cadre herbicide) CAS No. 81334-60-3 EPA Chem Code: 129041	E			
Comments: Studies were conducted using the free acid form of AC 263222. The PC Code & CASRN for the ammonium salt are 128943 & 104098-49-9, respectively.				
AC 299,263 CAS No. 11431-32-9 EPA Chem Code: 129171	Not Likely			
Acephate CAS No. 30560-19-1 EPA Chem Code: 103301	C	Hepatocellular carcinomas; CD-1 mice (F)		C
Comments: CRAVE Q* = 8.7 E-3 (O).				
Acetaldehyde CAS No. 75-07-0 EPA Chem Code: 202300	B2 (CRAVE)	Nasal tumors; SPF Wistar rats (M & F). Laryngeal tumors; Syrian Golden hamsters (M & F).	2.2 E-6 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Acetamide CAS No. 60-35-5 EPA Chem Code:	C	Liver tumors; Wistar rats (M); F344 rats (M & F).		
Comments: HCPRC considered whether or not to quantify the risk for Acetamide, and concluded that the data were not suitable for quantitative risk assessment because of deficiencies in the individual studies. Acetamide (not itself a pesticide) is a metabolite of pesticides Methomy & Thiodicarb.				
Acetochlor CAS No. 34256-82-1 EPA Chem Code: 121601	B2	Nasal epithelium adenomas, thyroid cell adenoma, benign chondra of femur, basal cell tumor of stomach; CD rats (M & F). Pulmonary adenomas (M & F); liver tumors (M); CD-1 mice.	1.69 E-2 (2/3)	Pending
Acetone CAS No. 67-64-1 EPA Chem Code: 044101	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Acetophenone CAS No. 98-86-2 EPA Chem Code: 129033	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Acifluorfen, sodium CAS No. 62476-59-9 EPA Chem Code: 121601	B2	Liver; B6C3F1 & CD-1 mice (M & F). Stomach papillomas; B6C3F mice (M & F).	1.07 E-1 (2/3)	Pending
Comments: [Syn. Tackle & Blazer]				
Acrinathrin CAS No. 101007-06-1 EPA Chem Code: 129141	D			
Comments: RFDC concluded that dose selection in the 2-year rat study was inadequate.				
Acrolein CAS No. 107-02-8 EPA Chem Code: 000701	C (CRAVE)	Adrenal cortical adenomas; Fischer 344 rats (F).		C
Comments: Classification is also based on carcinogenic potenital of metabolite, Glycidaldehyde. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Acrylamide CAS No. 79-06-1 EPA Chem Code: 600008	B2 (CRAVE)	Benign &/or malignant tumors at multiple sites in M & F rats (F344), & carcinogenic effects in a series of 1-year limited bioassays in mice (SENCAR, Swiss-ICR & A/J strains) by several routes of exposures.	4.5 E+0 (O) 1.3 E-3 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Acrylonitrile CAS No. 107-13-1 EPA Chem Code: 000601	B1 (CRAVE)	Significant increase in incidence of lung cancer in exposed workers & observation of tumors, generally astrocytomas in the brain, in 2 rat strains exposed by various routes (water, gavage, inhalation).	5.4 E-1 (O) 6.8 E-5 (I)	B1
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Alachlor CAS No. 15972-60-8 EPA Chem Code: 090501	Likely (high doses) Not likely (low doses)	Increased incidences of malignant & combined benign/malignant multiple tumor types in both sexes; Long Evans rat		
Comments: HCPRC recommended that a non-linear MOE approach be used for the purpose of risk assessment. The consensus of the HCPRC was that MOEs for both the malignant mixed gastric tumors and the nasal adenomas be presented for a risk management decision.				
Aldicarb (Temik) CAS No. 116-06-3 EPA Chem Code: 098301	E (OPP) D (CRAVE)			D
Comments: CRAVE assessment is located on IRIS.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Aldrin CAS No. 309-00-2 EPA Chem Code: 045101	B2 (CRAVE)	Liver carcinomas; C3HeB/Fe mice (M & F); Hepatic hyperplasia & begnign hepatomas; C3H mice (M & F); Hepatocellular carcinomas; B6C3F1 mice (M).	1.7 E+1 (O) 4.9 E-3 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Aminopyridine, 4- CAS No. 504-24-5 EPA Chem Code: 069203	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Amitraz (Baam) CAS No. 33089-61-1 EPA Chem Code: 106201	C(q)	Lymphoreticular tumors; CFLP mice (F). Hepatocellular adenomas, carcinomas & adenomas/carcinomas combined; B6C3F1 mice (F); Lung adenomas; B6C3F1 mice (M).	4.97 E-2 (2/3)	
Amitrole CAS No. 61-82-5 EPA Chem Code: 004401	B2 2B (IARC)	Thyroid (malignant & benign tumors); Charworth Farms, Fischer 344 & Wistar rats (M & F). Liver (malignant & bengin tumors); B6C3F1 & NMRI mice (M & F).	1.13 E+0	
Aniline CAS No. 62-53-3 EPA Chem Code: 251400	B2 (CRAVE)	Induction of tumors of the spleen and the body cavity in 2 strains of rat (CD-F & Fischer 344).	5.7 E-3	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Aramite CAS No. 140-57-8 EPA Chem Code: 062501	B2 (CRAVE)	Liver tumors &/or neoplastic nodules in three strains of M & F rats (FDRL, CFN & Osborne-Mendel) & M of one strain of mice (C57BL/6XC3H/Anf)F1. Extrahepatic biliary system tumors in dogs (mongrel).	2.5 E-2 (O) 7.1 E-6 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Asulam CAS No. 3337-71-1 EPA Chem Code: 106901	C	Malignant thyroid C-cell tumors; Benign adrenal pheochromocytomas; Sprague-Dawley rats (M).		
Atrazine CAS No. 1912-24-9 EPA Chem Code: 080803	C(q) 2B (IARC)	Mammary tumors; Sprague-Dawley rats (F).	1.12 E-1 (3/4)	Pending
Comments: New carcinogenicity classification pending.				
Avermectin B1 CAS No. 65195-55-3 EPA Chem Code: 122804	E			

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Azinphos-methyl (Guthion) CAS No. 86-50-0 EPA Chem Code: 058001	E			
Comments: Repeat of rat carcinogenicity study is requested.				
Azobenzene CAS No. 103-33-3 EPA Chem Code: 007401	B2 (CRAVE)	Invasive sarcomas in the spleen & other abdominal organs; F344 rats (M & F).	1.1 E-1 (O) 3.1 E-5 (I)	B2
Comments: Azobene is genotoxic & may be converted to benzidine, a known human carcinogen, under the acidic conditions in the stomach. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Azoxystrobin CAS No. 131860-33-8 EPA Chem Code: 128810	Not Likely			
Bardac 22 (also 2250, 2280) CAS No. 7173-51-5 EPA Chem Code: 069149	E			
Baygon (Propoxur) CAS No. 114-26-1 EPA Chem Code: 047802	B2	Bladder carcinomas (rare), papillomas & combined combined carcinoma/ papilloma (M&F); Wistar rats. Statistically significant increases in hepatocellar adenomas & adenomas & combined adenoma/carcinoma; B6C3F1 mice (M).	3.69 E-3 (3/4)	Pending
Comments: HCPRC recommended the low dose extrapolation model applied to the animal data be used for the quantification of human risk (Q1*).				
Benomyl CAS No. 17804-35-2 EPA Chem Code: 099101	C(q)	Liver tumors (hepatocellular adenomas & carcinomas) in 2 genetically related strains of mice (CD-1 & Swiss SPF) (M & F)	4.2 E-3 (2/3)	
Comments: Benomyl rapidly hydrolyses to MBC in an aqueous environment. MBC also appears to be the initial metabolite in mammalian systems. MBC has similar or increased toxicity, both acute & chronic, to Benomyl.				
Benoxacor CAS No. 98730-04-2 EPA Chem Code: 911508	Cannot be determined but suggestive	Increases in glandular stomach (forestomach) tumors in both sexes of mice and rats; CD-1 & Sprague-Dawley rats		
Comments: HCPRC recommended that for risk assessment purposes, an MOE approach should be used based on the most sensitive precursor stomach lesion.				
Bentazon (Basagran) CAS No. 25057-89-0 EPA Chem Code: 275200	E			
Benzene CAS No. 71-43-2 EPA Chem Code: 008801	A (CRAVE)	Increased incidence of nonlymphocytic lymphocytic leukemia from occupational exposure; Human. Increased incidence of neoplasia in rats & mice exposed by inhalation & gavage.	2.9 E-2 (O) 8.3 E-6 (I)	A
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Benzoic acid CAS No. 65-85-0 EPA Chem Code: 009101	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Bifenthrin (Talstar) CAS No. 82657-04-3 EPA Chem Code: 128825	C	Hemangiopericytomas in the urinary bladder; Hepatocellular carcinomas & combinded hepatocellular adenomas & carcinomas; Swiss Webster mice (M)		Deferred
Comments: HCPRC recommended that for the purpose of risk characterization, the Reference Dose (RfD) approach should be used for quantification of human risk.				
Biphenyl, 1,1- CAS No. 92-52-4 EPA Chem Code: 017002	D (CRAVE)			D
Comments: Assessment based on the lack data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Bis(chloroethyl)ether (BCEE) CAS No. 111-14-4 EPA Chem Code: 029501	B2 (CRAVE)	Increased evidence of hepatomas; (C57B1/6 x C3H/Anf)F1 mice (M & F) and (C57B1/6 x AKR)F1 mice (M).	1.1 E+0 (O) 3.3 E-4 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical. [Syn. Dichloroethyl]				
Borax CAS No. 1303-96-4 EPA Chem Code: 011102	E			
Boric acid CAS No. 10043-35-3 EPA Chem Code: 011001	E			
Boron CAS No. 7440-42-8 EPA Chem Code: 128945	E			
Bromacil CAS No. 314-40-9 EPA Chem Code: 012301	C	Liver tumors (carcinomas & combined adenomas/carcinomas); CD-1 mice (M). Thyroic tumors (C-cell adenomas & follicular cell combined adenomas/carcinomas); Crl:CD (BR) rats (M).		
Comments: HCPRC recommended that for the purpose of risk characterization, the Reference Dose (RfD) appraoch should be used for quantification of human risk.				
Bromotrichloromethane CAS No. 75-62-7 EPA Chem Code: 008708	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Bromoxynil CAS No. 1689-84-5 EPA Chem Code: 035301	C(q)	Statistically significant increases in hepatocellular adenomas and/ or carcinomas and combined adenomas/carcinomas; CD-1 mice (M & F).	1.03 E-1 (3/4)	
Bromuconazole CAS No. 116255-48-2 EPA Chem Code: 120503	E			
Bronopol CAS No. 52-51-7 EPA Chem Code: 216400	E			
Butachlor (Machete) CAS No. 23184-66-9 EPA Chem Code: 112301	Likely	Multiple tumors in multiple sites in Sprague-Dawley rats including rare stomach tumors in F, rare kidney tumors in M & F, as well as tumors of the nasal mucosa and thyroid glands in M & F.		
Comments: For the linear low-dose (Q1*) approach, extrapolation of risk should be based on the occurrence of renal cortical cell tumors in both sexes of rats at all dose levels tested. For the non-linear, margin of exposure (MOE) approach, extrapolation of risk should be based on the stomach, nasal and thyroid tumors in rats.				
Butylate (Sutan) CAS No. 2008-41-5 EPA Chem Code: 041405	E			
Cacodylic acid CAS No. 75-60-5 EPA Chem Code: 012501	B2	Urinary bladder tumor; Fischer 344 rats (M & F). Fibrosarcomas (multiple organs); B6C3F1 mice (F).	6.23 E-2 (3/4)	D
Cadmium CAS No. 7440-43-9 EPA Chem Code:	B1 (CRAVE) 1 (IARC)	Limited evidence from occupational epidemiologic studies. Evidence of carcinogenicity in rats mice by inhalation and intramuscular & subcutaneous injection.	1.8 E-3 (I)	B1
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Cadusafos (Ebufos/Rugby) CAS No. 95465-99-9 EPA Chem Code: 128864	E			
Captafol CAS No. 2939-80-2 EPA Chem Code: 081701	B2 2A (IARC)	Lymphosarcomas & hemangiosarcomas (M & F), harderian gland adenomas (M) CD-1 mice. Mammary fibroadenoma (M & F), renal adenomas/carcinomas (combined) (M); Sprague-Dawley rats (M).	5.1 E-2 (2/3)	
Captan CAS No. 133-06-2 EPA Chem Code: 081301	B2	Renal cortical/tubular cell neoplasms; CD rats (M); Uterine sarcomas Wistar rats (F). Intestinal tumors (M & F); B6C3F1, ICR CD-1 & CR CD-1 mice.	2.4 E-3 (3/4)	Pending
Carbaryl CAS No. 63-25-2 EPA Chem Code: 056801	C(q)	Hemangiosarcomas (malignant vascular tumors) & combined hemagiomas/ hemangiosarcomas; CRL:CD-1 (ICR)BR mice (M).	1.19 E-2 (3/4)	
Comments: Carbaryl also induced tumors at multiple organ sites in mice & rats but at dose levels considered to be excessively toxic for carcinogenicity testing. There was much discussion regarding the method of quantitation with the use of a low dose extrapolation (Q1*) approach and a MOE approach for quantification of human cancer risk; HCPRC agreed that both approaches be presented. In addition, an RfD approach would be provided to assess the most sensitive non-cancer health endpoint for comparison to the linear and MOE approaches.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Carbon tetrachloride CAS No. 56-23-5 EPA Chem Code: 016501	B2 (CRAVE)	Hepatocellur carcinomas; Osborne-Mendel, Japanese & Wistar rats; B6C3F1, C3H, A, Y, C and L mice; Syrian golden hamsters.	1.3 E-1 (O) 1.5 E-5 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Chloramben CAS No. 133-90-4 EPA Chem Code: 029901	Deferred			
Comments: HCPRC requested reviewer to re-tabulate data for both NCI studies; including data for pooled controls & results of the data audit; historical controls are also required. Rereview 1979 rat study & 1978 mouse study.				
Chlordane CAS No. 57-74-9 EPA Chem Code: 058201	B2 (CRAVE) 2B (IARC)	Benign & malignant liver tumors; C57B1/6N, CD-1, B6C3F1 & ICR mice (M & F); F344 rats (M).	1.3 E+0 (O) 3.7 E-4 (I)	B2
Comments: Chlordane is structurally related to other known liver carcinogens. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Chlordimeform CAS No. 6164-98-3 EPA Chem Code: 059701	B2 3 (IARC)	Malignant hemangioendothelomas; Tif:MAG:SPF mice (M & F).	1.3 E+0 (Diet) 9.4 E-1 (Occupation)	
Comments: Tumor was observed in 3 studies - Chlordimeform & its two metabolites [N-formyl-4 chloro-o-toluidine & 5-CAT].				
Chlorfenapyr (Pirate) CAS No. 122453-70-0 EPA Chem Code: 129093	Cannot Be Determined - Suggestive	The overall evidence in animals was not persuasive, but could not be dismissed. Increased in tumors in rats occurred with significant positive trends only, and mainly at the highest dose.		
Chloroaniline, p- CAS No. 106-47-8 EPA Chem Code: 017203	B2 2B (IARC)	Spleen (fibrosarcomas, hemangiosarcomas & osteosarcomas) (M); Adrenal (pheochromocytomas) (M & F); F344/N rats. Hepatocellular adenomas/carcinomas (M); Hemangiosarcomas in spleen and/or liver (M) B6C3F1	6.38 E-2 (3/4)	
Comments: p-Chloroaniline is a metabolite of Dimilin.				
Chlorobenzene CAS No. 108-90-7 EPA Chem Code: 056504	D (CRAVE)			D
Comments: Assessment is based on lack of human data, inadequate animal data & predominantly negative genetic toxicity data. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Chlorobenzilate CAS No. 510-15-6 EPA Chem Code: 028801	3 (IARC)			

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Chloroform CAS No. 97-66-3 EPA Chem Code: 020701	B2 (CRAVE)	Kidney tumors; Osborne-Mendel rats (M). Hepatocellular carcinomas; B6C3F1 mice (M & F); Hepatomas; A and NLC strain mice (F).	6.1 E-3 (O) 2.3 E-5 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Chlorothalonil CAS No. 1897-45-6 EPA Chem Code: 081901	Likely 3 (IARC)	Renal adenomas & carcinomas, both sexes of rats & mice; rarity of the tumor response in the kidney; papillomas and/or carcinomas of the forestomach in rats & mice; CD-1 mice; Fischer 344 & Osborne-Mendel rats.	7.66 E-3 (3/4)	Pending
Comments: HCPRC recommended that a non-linear appraoch to risk assessment, using MOE, should be used.				
Chlorpropham (CIPC) CAS No. 101-21-3 EPA Chem Code: 018301	E			
Chlorpyrifos CAS No. 2921-88-2 EPA Chem Code: 059101	E			
Cinch (Cinmethylin) CAS No. 87818-31-3 EPA Chem Code: 128837	D			
Comments: HCPRC concluded there was no substantial biological evidence of tumor formation in mice or rats, however, dosing in both studies were inadequate for determining carcinogenic potential. Additional studies are requested.				
Clofentezine (Apollo) CAS No. 74115-24-5 EPA Chem Code: 125501	C	Increased incidence of benign & malignant thyroid follicular cell adenoma/carcinoma; Sprague-Dawley rat	3.76 E-2 (3/4)	C
Comments: HCPRC also noted that the tumor incidence was greater than the upper limit of the historical control range & was increased at a dose level well below a limit dose or Maximum Tolerated Dose (MTD) predicted by subchronic studies. HCPRC also concluded that no quantification of risk would be done at the present time & that another long-term study using higher doses may be necessary to support appropriate characterization & quantification of potential risks associated with the uses of Clofentezine.				
Copper (metallic) CAS No. 7440-50-8 EPA Chem Code: 022501	D (CRAVE)			D
Comments: Assessment based on lack of human data & inadequate animal data from assays of copper compounds. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Coumaphos CAS No. 56-72-4 EPA Chem Code: 036501	E			

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Creosote CAS No. 8001-58-9 EPA Chem Code: 025004	B1 (CRAVE)	Limited evidence of the association between occupational creosote contact & subsequent tumor formation, sufficient evidence of local & distant tumor formation after dermal application to mice.		B1
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Cresol, p-Chloro-m- CAS No. 59-50-7 EPA Chem Code: 064206	D			
Comments: HCPRC concluded the evidence is inadequate & cannot be interpreted as showing either the presence or absence of a carcinogenic effect.				
Cryolite (Kryocide) CAS No. 15096-52-3 EPA Chem Code: 075101	D			
Comments: Assessment based on inadequate animal data.				
Cyanazine (Bladex) CAS No. 21725-46-2 EPA Chem Code: 100101	C(q)	Mammary gland tumors (adenocarcinoma, carcinosarcoma); Sprague-Dawely rat (F).	1.0 E-0	Pending
Cyclanilide CAS No. 113136-77-9 EPA Chem Code: 026201	Not Likely			
Cyhalothrin/Karate CAS No. 68085-85-8 EPA Chem Code: 128867	D			
Comments: Due to the equivocal nature of the findings in the mouse study & in view of the inadequacy of the dose levels tested, the RFDC concluded that the chemical should be classified as a "Group D."				
Cypermethrin CAS No. 52315-07-8 EPA Chem Code: 109702	C	Benign lung adenomas (increase in both adenomas and adenomas/carcinomas combined); Alderly Park SPF Swiss strain mice (F).		
Cyproconazole (SAN 619F) CAS No. 94361-06-5 EPA Chem Code: 128993	B2	Hepatocellular adenomas & carcinomas; CD-1 mice (M & F).	3.02 E-1 (2/3)	
Comments: Assessment also based on the possible clastogenic acitivity of Cyproconazole, tumors in mice & rats administered structurally-related analogues from the same chemical class and lack of adequate rat carcinogenicity study.				
Cyromazine (Larvadex) CAS No. 66215-27-8 EPA Chem Code: 121301	E			
Comments: Metabolite is Melamine.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
DDD CAS No. 72-54-8 EPA Chem Code: 029101	B2 (CRAVE) 2B (IARC)	Lung tumors (M & F), liver tumors (M); CF-1 mice. Thyroid tumors (follicular cell adenomas & carcinomas); Osborne-Mendel rats (M).	2.4 E-1	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
DDE CAS No. 72-55-9 EPA Chem Code:	B2 (CRAVE) 2B (IARC)	Liver tumors; B6C3F1 mice (hepatocellular carcinomas) (M & F); CF-1 mice (hepatomas) (M & F). Liver (neoplastic nodules); Syrian Golden Hamsters (M & F). Thyroid tumors; Osborne-Mendel rats (F).	3.4 E-1	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
DDT CAS No. 50-29-3 EPA Chem Code: 029201	B2 (CRAVE) 2B (IARC)	Tumors (generally of the liver) were observed in 7 studies in various mouse strains [BALB/C, CF-1, A strain, Swiss/Bomaby & (C57B1)x(C3HxAkR)] and in 3 rat studies (Wistar, MRC Porton & Osborne-Mendel).	3.4 E-1 (O) 9.7 E-5 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
DEET CAS No. 134-62-3 EPA Chem Code: 080301	D			
Comments: Dosing for male rats was considered inadequate. [Syn. N,N-Diethyl-metatoluamide]				
Dacthal (DCPA) CAS No. 1861-32-1 EPA Chem Code: 078701	C(q)	Thyroid tumors (M & F); Hepatocellular adenoma/carcinoma/hepatocholoangiocarcinoma (F); Sprague-Dawley rats. Hepatocellular adenomas & combined adenoma/carcinoma; CD-1 mice (F).	1.49 E-3 (3/4)	
Daminozide (Alar) CAS No. 1596-84-5 EPA Chem Code: 035101	B2	Multiple sites (eg. lungs, vessels, liver & kidney); Multiple species, strains & studies.	8.7 E-3	
Comments: SAP recommended repeating carcinogenicity studies.				
Dazomet CAS No. 533-74-4 EPA Chem Code: 035602	D	Equivocal evidence of hepatocellular tumors; B6C3F1 mice (F).		
Comments: The HCPRC noted that the existing genotoxicity data for Dazomet are predominantly positive, & concluded additional testing may be necessary, if there are significant changes in use patterns.				
Desmedipham CAS No. 13684-56-5 EPA Chem Code: 104801	E			

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Di(2-ethylhexyl)phthalate CAS No. 117-81-7 EPA Chem Code: 295200	B2 (CRAVE)	Hepatocellular carcinomas & combined incidence of carcinomas & adenoma; Fischer 344 rats (F) and B6C3F1 mice (M & F). Neoplastic nodules & hepatocellular carcinomas; Fischer 344 rats (M).	1.4 E-2	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical. [Syn. DEHP, Bis(2-ethylhexy)phthalate]				
Diazinon CAS No. 333-41-5 EPA Chem Code: 057801	Not Likely			
Dibromochloropropane (DBCP) CAS No. 96-12-8 EPA Chem Code: 011301	B2 (CAG) 2B (IARC)	Liver, kidney, stomach, nasal; Osborne-Mendel & Fischer 344 rats.	1.2 E-5 (2/3)	Pending
Comments: OPP has not reviewed this chemical.				
Dibromoethane, 1,2- CAS No. 106-93-4 EPA Chem Code: 042002	B2 (CRAVE)	Increased incidence of a variety of tumors in rats & mice by 3 routes of administration at both the site of application and at distant sites. EDB is mutagenic in various in vitro and in vivo assays.	8.5 E+1 (O) 2.2 E-4 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical. [Syn. EDB, Ethylene dibromide]				
Dibutyl phthalate CAS No. 84-74-2 EPA Chem Code: 028001	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Dicamba CAS No. 1918-00-9 EPA Chem Code: 029801	D			Pending
Comments: The RFDC concluded that doses selected for the rat & mouse studies were not adequate.				
Dichlobenil CAS No. 1194-65-6 EPA Chem Code: 027401	C	Adenomas alone & in combined adenoma/carcinoma at the HDT only (F); Hepatocellular adenomas and carcinomas, alone and combined (M & F); Fischer 344 rats.		
Comments: HCPRC recommended that for the purpose of risk characterization the Reference Dose (RfD) should be used for quantification of human risk.				
Dichlorobenzamide, 2,6- CAS No. 2008-88-4 EPA Chem Code: 027402	Not classifiable			
Comments: RFDC concluded that the rat study to be unacceptable as presented. The tumor incidences were not adequately reported. There was no mouse carcinogenicity study available for review. RFDC concluded that the chemical is not classificable for carcinogenic potential because of the inadequacy of the existing data including the carcinogenicity data.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Dichlorobenzene, 1,2- CAS No. 95-50-1 EPA Chem Code: 059401	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviwed this chemical. [Syn. Orthodichlorobenzene]				
Dichloroethane, 1,2- CAS No. 107-06-2 EPA Chem Code: 042003	B2 (CRAVE)	Induction of several tumor types in Osborne-Mendel rats & B6C3F1 mice treated by gavage and lung papillomas in ICR/HA Swiss mice after topical application.	9.1 E-2 (O) 2.6 E-5 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical. [Syn. EDC]				
Dichloroethylene, 1,1- CAS No. 75-35-4 EPA Chem Code: 600033	C (CRAVE)	Kidney adenomacarcinoma; Swiss mice (M)	6.0 E-1 (O) 5.0 E-5 (I)	C
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical. [Syn. Vinylidene chloride]				
Dichloromethane CAS No. 75-09-2 EPA Chem Code: 042004	B2 (CRAVE)	Hepatocellular neoplasms & alveolar/bronchiolar neoplasms; B6C3F1 mice (M & F). Benign mammary tumors (M & F), salivary gland sarcomas (M), leukemia (F); F344 rats.	7.5 E-3 (O) 4.7 E-7 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Dichloropropene, 1,3- CAS No. 542-75-6 EPA Chem Code: 029001	B2	Forestomach, liver, mammary, thyroid, adrenal, urinary & lung tumors; Fischer 344 rats & B6C3F1 mice (M & F). Bronchioloaveolar adenomas; B6C3F1 mice (M).	1.22 E-1 (3/4) (O)	B2
Comments: [Syn. Telone II]				
Dichlorvos (DDVP) CAS No. 62-73-7 EPA Chem Code: 084001	C(q) 2B (IARC)	Stomach tumors (forestomach, papilloma squamous & squamous cell carcinoma); B6C3F1 mice (F). Leukemia (of all sites & types); Fischer 344 rats (M).	2.72 E-1 (3/4)	B2
Comments: CRAVE Q* = 2.9 E-1 (O).				
Diclofop-methyl (Hoelon) CAS No. 51338-27-3 EPA Chem Code: 110902	C(q)	Significantly increased (pairwise & trend) hepatocellular adenomas, carcinomas & combined tumors; HOE NMRKf (SPF 71) mice (M & F).	2.3 E-1 (3/4)	
Dicofol (Kelthane) CAS No. 115-32-2 EPA Chem Code: 010501	C 3 (IARC)	Liver tumors (adenomas/carcinomas); B6C3F1 mice (M)		Deferred
Comments: HCPRC recommended that for the purpose of risk characterization the Reference Dose (RfD) approach should be used for quantification of human risk.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Dieldrin CAS No. 60-57-1 EPA Chem Code: 045001	B2 (CRAVE)	Effects range from benign liver tumors to hepatocarcinomas with transplantation confirmation, to pulmonary metastases; M & F mice (C3HeB/Fe, C3H, CF1, B6C3F1, C3H/HE & C57B1/6J)	1.6 E+1 (O) 4.6 E-3 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Diethyl phthalate CAS No. 84-66-2 EPA Chem Code: 128947	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Difenoconazole (Dividend) CAS No. 119446-68-3 EPA Chem Code: 128847	C	Statistically significant increases in liver adenomas, carcinomas & combined adenomas/carcinomas; CD-1 mice (M & F).	1.57 E-1 (3/4)	
Comments: Tumors were observed at doses which were considered to be excessively high for carcinogenicity testing. HCPRC recommended that for the purpose of risk characterization, the Margin of Exposure (MOE) approach should be used for quantification of human risk.				
Difenzoquat methyl sulfate CAS No. 43222-48-6 EPA Chem Code: 106401	E			
Diflubenzuron (Dimilin) CAS No. 35367-38-5 EPA Chem Code: 108201	E			
Comments: p-Chloroaniline is a metabolite.				
Diflufenzopyr-sodium CAS No. 109293-98-3 EPA Chem Code: 005107	Not likely			
Comments: The HIARC had a metabolism concern for 3,5-difluoroaniline (DFA), a rat metabolite. The HIARC concluded that if significant secondary residues [meat/milk] of this minor rat urinary metabolite [<1%] occurred, then the metabolite would have to be regulated based on carcinogenicity of dichloroaniline [DCA]. Since there are no toxicological data for DCA, as per HED policy, all chloroanilines are considered to be carcinogens and a carcinogenic risk assessment will be conducted using the Q1* for Parachloroaniline (PC). The Q1* is 6.38 x 10E-2.				
Dimethenamid (SAN 582H) CAS No. 87674-68-8 EPA Chem Code: 129051	C	Statistically significant increasing trend for benign combined and/or malignant liver tumors; Sprague-Dawley rat (M). Unresolved issues regarding nasal tumors, strong mutagenicity data & SAR.		
Comments: HCPRC recommended a heritable translocation test, which is the next required test after a positive dominant lethal study (as per Mutagenicity Guidelines, Subdivision F, addendum 9).				
Dimethipin (Harvade) CAS No. 55290-64-7 EPA Chem Code: 118901	C	Lung adenomas & carcinomas; CD-1 mice (M)		C
Comments: Repeat of rat carcinogenicity study is requested. Consideration of whether or not a quantification of risk is to be determined for Harvade was deferred, pending receipt of an adquate 2-year study in the rat.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Dimethoate CAS No. 60-51-5 EPA Chem Code: 035001	C	Hemolymphoreticular tumors; B6C3F1 mice (M). Spleen (hemangioma & hemangiosarcoma) skin (hemangiosarcoma), lymph (angioma and angiosarcoma) tumors; Wistar rats (M).		
Comments: HCPRC recommended for the purpose of risk characterization that the Reference Dose (RfD) approach should be used for quantification of human risk.				
Dimethyl ether CAS No. EPA Chem Code:	D			
Comments: Assessment based inadequate animal data. In a rat study [Crl:CD(SD)BR] there was statistcal elevation in total mammary tumors; however the HCPRC agreed that the evidence was not convincing.				
Dimethyl phthalate CAS No. 131-11-3 EPA Chem Code: 028002	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Dinocap (Karathane) CAS No. 39300-45-3 EPA Chem Code: 036001	E			
Dinoseb CAS No. 88-85-7 EPA Chem Code: 037505	C	Liver adenomas; CD-1 mice (F).		D
Comments: Repeat of rat carcinogenicity study is requested.				
Diquat dibromide CAS No. 85-00-7 EPA Chem Code: 032201	E			Pending
Disulfoton (Disyston) CAS No. 298-04-4 EPA Chem Code: 032501	E			
Dithiopyr (MON 7200) CAS No. 97886-45-8 EPA Chem Code: 128994	E			
Diuron CAS No. 330-54-1 EPA Chem Code: 035505	Known/Likely	Urinary bladder carcinomas; Wistar rat (M & F). Mammary gland carcinomas; NMRI mice (F). Information from structurally related analogs provided further support.	1.91 E-2 (3/4)	
Comments: For the purpose of risk characterization, a low dose linear extrapolation model to be applied to the animal data for the quantification of human risk, based on urinary bladder carcinomas in the male rat.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Endosulfan CAS No. 115-29-7 EPA Chem Code: 079401	E			Deferred
Endrin CAS No. 72-20-8 EPA Chem Code: 041601	D (CRAVE)	An NCI bioassay was suggestive of response in Osborne-Mendel rats (M & F).		D
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Epichlorohydrin CAS No. 106-89-8 EPA Chem Code: 097201	B2 (CRAVE)	Multiple studies in rats & mice administered epichlorohydrin by various routes were positive. As Epichlorohydrin is a strong alkylating agent, tumors are produced at the site of application.	9.9 E-3 (O) 1.2 E-6 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Esfenvalerate (Asna) CAS No. 66230-04-4 EPA Chem Code: 109303	E			
Comments: Data from Fenvalerate (CAS No. 51630-58-1) was used in this assessment.				
Ethalfluralin (Sonalan) CAS No. 55283-68-6 EPA Chem Code: 113101	C(q)	Mammary tumors (F); Suggestion of bladder tumors (F) and kidney tumors (M & F); Fischer 344 rats	8.9 E-2 (3/4)	
Comments: HCPRC considered the dose levels in the mouse study to be inadequate; however HCPRC did not recommend repeating the study.				
Ethametsulfuron CAS No. 97780-06-8 EPA Chem Code: 129091	Can not be evaluated			
Comments: The carcinogenic potential of Ethametsulfuron can not be evaluated since the highest dose tested in mice and rats did not elicit systemic toxicity and thus were judged to be inadequate to assess the carcinogenic potential of Ethametsulfuron. No rationale was provided for dose selection. HIARC noted that Ethametsulfuron, sulfonylurea is structurally related to other sulfonylureas such as Bensulfuron methyl, Halosulfuron methyl (Group E), Nicosulfuron (Group E), Primisulfuron methyl (Group D) & Rimsulfuron (Group E).				
Ethephon CAS No. 16672-87-0 EPA Chem Code: 099801	D			
Comments: The RFDC considered that the evidence from the 2 rat studies and 1 of the mouse studies to be inadequate to support a positive carcinogenicity finding, while evidence from the other mouse study was equivocal.				
Ethion CAS No. 563-12-2 EPA Chem Code: 058401	E			

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Ethiozin (Ebuzin/Tycor) CAS No. 64529-56-2 EPA Chem Code: 128883	Tentative C	Thyroid follicular cell tumors; F344 rats (M & F).		
Comments: Quantification deferred pending submission & evaluation of additional data.				
Ethofenprox (Etofenprox) CAS No. 80844-07-1 EPA Chem Code: 128965	C(q)	Combined thyroid follicular cell adenomas/carcinomas; Sprague-Dawley rats (M & F).	5.1 E-3 (2/3)	
Ethofumesate CAS No. 26225-79-6 EPA Chem Code: 110601	D			
Comments: Assessment based on the fact that the carcinogenicity phase of the rat study & the hamster study were both considered to be inadequate.				
Ethoprop (Ethoprophos) CAS No. 13194-48-4 EPA Chem Code: 041101	Likely	Pheochromocytoma - adrenal glands (malignant); Sprague-Dawley rat rat (M); Cell carcinomas - thyroid gland; Sprague-Dawley & Fischer 344 rat (M); Evidence of clastogenicity in vitro mutagenicity testing.	2.81 E-2 (3/4)	
Comments: A liner low-dose approach for human risk characterization & extrapolation should be based on malignant pheochromocytomas of the adrenal glands in male rats at all dose levels tested.				
Ethylene CAS No. 74-85-1 EPA Chem Code: 041901	3 (IARC)			
Ethylene diamine CAS No. 107-15-3 EPA Chem Code: 004205	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Ethylene oxide CAS No. 75-21-8 EPA Chem Code: 042301	1 (IARC) B1 (OHEA,1985)			
Comments: OPP has not reviewed this chemical.				
Ethylene thiourea (ETU) CAS No. 96-45-7 EPA Chem Code: 600016	B2	Thyroid adenoma, carcinoma, & combined adenoma/carcinoma; F344 & CRCD rats (M & F). Thyroid adenomas & carcinoma, putuitary & liver tumors; B6C3F1 & C57BL/6 x AKR mice (M & F).	6.01 E-2 (3/4)	Pending
Fenamiphos (Nemacur) CAS No. 22224-92-6 EPA Chem Code: 100601	E			

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Fenarimol CAS No. 60168-88-9 EPA Chem Code: 206600	E			
Fenbuconazole (Fenethanil) CAS No. 114369-43-6 EPA Chem Code: 129011	C(q)	Thyroid follicular cell adenomas &/or combined adenomas/carcinomas; Sprague-Dawley rats (M). Hepatocellular carcinomas (M); Hepatocellular adenomas & combinded adenomas and/or carcinomas (F); CD-1 mice.	3.59 E-3 (3/4)	
Comments: HCPRC recommended that for the purpose of risk characterization a low dose extrapolation model applied to the experimental animal tumor data should be used for quantification of human risk (Q1*).				
Fenbutatin oxide (Vendex) CAS No. 13356-08-6 EPA Chem Code: 104601	E			
Fenitrothion (Sumithion) CAS No. 122-14-5 EPA Chem Code: 105901	E			
Fenoxycarb CAS No. 72490-01-8 EPA Chem Code: 125301	B2	Lung adenomas, carcinomas & combined adenoma/carcinoma; Harderian gland adenomas; CD-1 mice (M).		
Comments: HCPRC recommended a low dose extrapolation model be applied to the animal data for the quantification of human risk.				
Fenpropathrin (Danitol) CAS No. 39515-41-8 EPA Chem Code: 127901	E			
Fenpryroximate CAS No. 134098-61-6 EPA Chem Code: 129131	Not Likely			
Fenthion CAS No. 55-38-9 EPA Chem Code: 053301	E			
Fenvalerate (Pydrin) CAS No. 51630-58-1 EPA Chem Code: 109301	E			
Comments: All food uses for Fenvalerate have or will be transferred to Esfenvalerate (CAS No. 66230-44-4). Fenvalerate data will be used in the Esfenvalerate assessment.				
Fipronil CAS No. 120068-37-3 EPA Chem Code: 129121	C	Thyroid follicular cell adenomas, carcinomas & combined adenomas/carcinomas (M); thyroid follicular cell adenomas and combined adenomas/carcinomas (F); Charles River CD rats.		
Comments: HCPRC recommended that the RfD methodology be used for estimation of human risk.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Fludioxonil (Maxim) CAS No. 13141-86-1 EPA Chem Code: 071503	D	Based on increased liver tumors in rats (F) that was statistically significant for combined adenoma/carcinoma only, lack of response in M rats or either sex of the mouse & need for additional mutagenicity studies.		
Flumetsulam (XRD-498) CAS No. 98967-40-9 EPA Chem Code: 129016	E			
Flumiclorac pentyl CAS No. 87546-18-7 EPA Chem Code: 128724	E			
Fluometuron CAS No. 2164-17-2 EPA Chem Code: 035503	C(q)	Statistically significant increases in combinded adenomas/carcinomas of the lung (M); Malignant lymphocytic lymphomas (F); CD-1 mice.	1.80 E-2 (3/4)	
Comments: HCPR recommened for the purpose of risk characterization, both a low dose extrapolation model (Q1*) applied to animal data (lung tumors in male mice) and the Reference Dose approach be used.				
Fluridone CAS No. 59756-60-4 EPA Chem Code: 112900	E			
Fluroxypyr (DOWCO 433) CAS No. 69377-81-7 EPA Chem Code: 128959	Not Likely			
Flusilazole (NUstar) CAS No. 85509-19-9 EPA Chem Code: 128835	Deferred			
Comments: HCPRC recommends new carcinogenicity studies in M & F in both the rat and mouse.				
Fluthiacet-methyl (Action) CAS No. 117337-19-6 EPA Chem Code: 108803	Likely	Pancreatic cell tumors (exocrine adenomas, islet cell adenomas, and combined islet cell tumors); Sprague-Dawley rats (M). Hepatocellular tumors (adenomas and combined adenoma/carcinoma); CD-1 mice (M & F).	2.07 E-1 (3/4)	
Comments: CARC recommended a linear low-dose approach (Q1*) for human characterization & determined that extrapolation should be based on the combined hepatocellular adenoma/carcinoma in male mice. Although both tumor types (pancreatic cell & hepatocellular) are of concern, the hepatocellular tumors were selected for extrapolation since this tumor type was observed at a lower dose (10 mg/kg/day) in mice compared to the pancreatic cell tumors which were seen at a higher dose (130 mg/kg/day) in rats.				
Flutolanil (Moncut) CAS No. 66332-96-5 EPA Chem Code: 128975	E			

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Folpet CAS No. 133-07-3 EPA Chem Code: 081601	B2	Duodenum (carcinoma & adenoma); CD-1 & B6C3F1 mice (M & F); Hyperkeratosis/acanthosis; B6C3F1 mice (M).	1.86 E-3 (3/4)	B2
Comments: Additional information for the rat studies has been requested.				
Fomesafen (Flex) CAS No. 72178-02-0 EPA Chem Code: 123802	C(q)	Liver tumors (adenomas, carcinomas, & adenomas/carcinomas combined); CD-1 mice (M & F).	1.9 E-1 (2/3)	C
Fonofos (Dyfonate) CAS No. 944-22-9 EPA Chem Code: 041701	E			
Formaldehyde CAS No. 50-00-0 EPA Chem Code: 043001	B1 (CRAVE)	Statistically significant associations between site-specific respiratory neoplasms & exposure to formaldehyde; Humans. Nasal squamous cell carcinomas; Sprague-Dawley & Fischer 344 rats, B6C3F1 mice.	1.3 E-5 (I)	B1
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Formetanate hydrochloride CAS No. 23422-53-9 EPA Chem Code: 097301	E			
Fosetyl-Al (Aliette) CAS No. 39148-24-8 EPA Chem Code: 123301	Not amenable to classification			C
Comments: HCPRC concluded that Fosetyl-Al was not amenable to classification using current Agency cancer guidelines. The HCPRC concluded that pesticidal use of Fosetyl-Al is unlikely to pose a carcinogenic hazard to humans. [Note: CRAVE classification based on urinary bladder tumors (adenomas/carcinomas combined) in male CD rats.]				
Furmecyclox (Xyligen B) CAS No. 60568-05-0 EPA Chem Code: 122601	B2	Liver tumors (M & F); Urothelial tumors (M); Sprague-Dawley rats.	2.98 E-2 (2/3)	B2
Comments: CRAVE Q* = 3.0 E-2 (O).				
Glyphosate CAS No. 1071-83-6 EPA Chem Code: 417300	E			D
Glyphosate trimesium CAS No. 81591-81-3 EPA Chem Code: 128501	E			
Comments: [Syn. Sulfosate]				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
HOE 107892 CAS No. 135590-91-9 EPA Chem Code: R47618	Not likely to be a human carcinogen			
Halosulfuron-methyl CAS No. 100784-20-1 EPA Chem Code: 128721	E			
Haloxyfop-methyl (Verdict) CAS No. 690806-40-2 EPA Chem Code: 125201	B2	Liver tumors [adenomas (M), carcinomas (F) & adenomas/carcinomas (M & F)]; B6C3F1 mice.	7.39 E+0 (2/3)	Pending
Comments: Assessment also based upon the acknowledgement by the registrant that the compound would be likely to cause tumors of the liver in rats if tested at adequate dosage levels.				
Heptachlor CAS No. 76-44-8 EPA Chem Code: 044801	B2 (CRAVE)	Benign and malignant liver tumors (M & F) in mice (C3H & B6C3F1),	4.5 E+0 (O) 1.3 E-3 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Heptachlor epoxide CAS No. 1024-57-3 EPA Chem Code: 044801	B2 (CRAVE)	Liver carcinomas; C3H & CD-1 mice (M & F); CFN rats (F).	9.1 E+0 (2/3) (O) 2.6 E-3 (2/3) (I)	
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Hexachlorobenzene (HCB) CAS No. 118-74-1 EPA Chem Code: 061001	B2 (CRAVE) 2B (IARC)	Tumors in the liver, thyroid & kidney in rats (Sprague-Dawley, Agus & Wistar), mice (Swiss & ICR) and hamsters (Syrian Golden).	1.02 E+0 (3/4) (O)	B2
Comments: Hexachlorobenzene is a contaminate of PCNB & Dacthal. OPP has revised (06/21/95) the oral Q* for HCB: 1.02 E+0.				
Hexachlorocyclohexane CAS No. 608-73-1 EPA Chem Code: 008901	B2 (CRAVE)	Benign hepatic nodules & hepatocellular carcinomas; Swiss mice (M). Liver nodules hepatomas; dd mice (M & F). Hepatomas; ICR-JCL mice (M & F).	1.8 E+0 (O) 5.1 E-4 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical. [Syn. t-HCH]				
Hexachlorocyclopentadiene CAS No. 77-47-4 EPA Chem Code: 027502	D (CRAVE)			D
Comments: Assessment based on inadequate data in humans & no data in animals concerning carcinogenicity. This assessment is located on IRIS. OPP has not reviewed this chemical.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Hexachloroethane CAS No. 67-72-1 EPA Chem Code: 045201	C (CRAVE)	Hepatocellular carcinoma; B6C3F1 mice (M & F).	1.4 E-2 (O) 4.0 E-6 (I)	
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Hexaconazole (Anvil) CAS No. 79983-71-4 EPA Chem Code: 128925	C(q)	Benign Leydig cell tumors; Wistar (Alpk:APfSD) rat (M)	1.6 E-2 (3/4)	
Comments: Chemical was not adequately tested for carcinogenic potential in mice. Repeat of study not required at this time. Quantification of potential human cancer risk using a low-dose extrapolation model (Q1*), was recommended.				
Hexazinone CAS No. 51235-04-2 EPA Chem Code: 107201	D	Statistically significant increasing trend in combined hepatocellular adenoma/carcinoma; CD-1 mice (F).		
Comments: Assessment based on evidence that was equivocal (not entirely negative, but yet not convincing) since only statistically significant increase was in F mice (by trend test, but not by pairwise comparison with controls).				
Hexythiazox (Savey) CAS No. 78587-05-0 EPA Chem Code: 128849	C(q)	Liver (hepatocellular carcinomas & carcinomas/adenomas combined); B6C3F1 mice (F).	2.22 E-2 (3/4)	Pending
Hydramethylnon (Amdro) CAS No. 67485-29-4 EPA Chem Code: 118401	C	Lung adenomas & combined adenomas/carcinomas; CD-1 mice (F).		
Comments: HCPRC recommended that for the purpose of risk characterization the Reference Dose (RfD) approach should be used for the quantification of human risk.				
Hydrogen cyanamide CAS No. 420-04-2 EPA Chem Code: 014002	C(q)	Ovarian granulosa-theca tumors; CRL:CD-1 (ICR)BR mice (F) [Hydrogen cyanamide]. Positive trend in hemangiosarcomas; B6C3F1 mice (M) [Calcium cyanamide].	6.74 E-2 (2/3)	
Comments: Calcium cyanamide is rapidly & quantitatively converted to Hydrogen cyanamide in solution & at the pH of the human & rat gut. Thus, Calcium cyanamide studies were used as supporting data for Hydrogen cyanamide.				
Hydroprene (Altozar) CAS No. 41096-46-2 EPA Chem Code: 486300	D			
Comments: Assessment based on equivocal nature of the findings in the rat study and the lack of a carcinogenicity study in a second species.				
Hydroquinone CAS No. 123-31-9 EPA Chem Code:	Not classified		5.6 E-2	
Comments: Hydroquinone is a plant metabolite of Asulam.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Imazalil CAS No. 35554-44-0 EPA Chem Code: 111901	C(q)	Hepatocellular adenomas & combined adenomas/carcinomas with positive trends for adenomas, carcinomas & combined adenomas/carcinomas (M); Liver tumors (adenomas & combined adenomas/carcinomas) (F); Swiss mice	6.20 E-2 (3/4)	
Comments: HCPRC concluded that another rat study conducted at adequately high doses, an in vivo UDS study and an S-Phase cell proliferation assay.				
Imazapyr (Arsenal) CAS No. 81334-34-1 EPA Chem Code: 128821	E			
Imazethabenz (Assert) CAS No. 81405-85-8 EPA Chem Code: 128842	D	Vascular; Positive trend for hemangiosarcomas in CD-1 mice (M).		Deferred
Imidacloprid CAS No. 105827-78-9 EPA Chem Code: 129099	E			
Iprodione (Glycophene) CAS No. 36734-19-7 EPA Chem Code: 109801	Likely	Hepatocellular tumors (M&F); Ovarian luteomas (F); CD-1 mice. Testicular interstitial cell tumors (Leydig cell); Crl:CD(SD)BR rats (M).	4.39 E-2 (3/4)	
Comments: CARC re-affirmed that the current linear low-dose extrapolation should be based on the liver tumors in both sexes of mice & the Leydig cell tumor in male rats.				
Isophorone CAS No. 78-59-1 EPA Chem Code: 047401	C (CRAVE)	Preputial gland carcinomas; F344/N rats (M)	6.08 E-4 (3/4)	C
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Isoxaben (EL-107) CAS No. 82558-50-7 EPA Chem Code: 125851	C	Hepatocellular adenomas; B6C3F1 mice (M & F).		Pending
Isoxaflutole CAS No. 14112-29-0 EPA Chem Code: 123000	Likely	Statistically significant increases in liver tumors in both sexes of mice & rats; statistically significant increases in thyroid tumors in male rats; CD-1 mice and Sprague-Dawley rats.		
Comments: For the purpose of risk characterization, a non-linear approach-MOE to be applied to the most sensitive precursor lesion in M rat thyroid, and that a linear low-dose extrapolation to be applied for the tumors of the rat liver.				
Kathon 886 (Kathon Biocide) CAS No. 55965-84-9 EPA Chem Code: 107106	D			
Comments: Assessment based on the lack of second carcinogenicity study in a another species.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Kresoxim-methyl CAS No. 143390-89-0 EPA Chem Code: 129111	Likely to be carcinogenic to humans	Liver tumors (hepatocellular adenomas, hepatocellular carcinomas & combined adenomas/carcinomas); Wistar rats (M & F).	2.90 E-3 (3/4)	
Comments: For human risk characterization, CARC recommended the extrapolation of risk using the linear low-dose (Q1*) approach based on combined hepatocellular adenomas/carcinomas in female rats. This extrapolation was supported by the lack of confirmation of the mode of action for liver tumor induction & dose-dependent increased incidence of liver tumors in male & female rats.				
Lactofen (Cobra) CAS No. 77501-63-4 EPA Chem Code: 128888	B2	Hepatocellular carcinomas (M); Hepatocellular adenomas & carcinomas (M & F); CD-1 mice. Liver neoplastic nodules; Sprague-Dawley rats (M & F).	1.7 E-1 (2/3)	
Lindane CAS No. 58-89-9 EPA Chem Code: 009001	B2/C (CAG)	Liver and lung tumors (both benign); mice		
Comments: A Lindane metabolite, 2,4,6-trichlorophenol (TCP) is classified as B2. OPP has not reviewed this chemical.				
Linuron CAS No. 330-55-2 EPA Chem Code: 035506	C	Testicular tumors; CD rats (M); Hepatocellular adenomas; CD-1 mice (M & F).		C
MBC (Carbendazim) CAS No. 10605-21-7 EPA Chem Code: 128872	C(q)	Liver tumors (hepatocellular adenomas & carcinomas) in 2 genetically related strains of mice (CD-1 & Swiss SPF) (M & F).	4.2 E-3 (2/3)	
Comments: Benomyl rapidly hydrolyses to MBC in an aqueous environment. MBC also appears to be the initial metabolite in mammalian systems. MBC has similar or increased toxicity, both acute & chronic, to Benomyl.				
MGK Repellent 326 CAS No. 136-45-8 EPA Chem Code: 047201	B2	Multiple malignant & benign tumors [liver (M & F), kidney (M & F), testes (M) & uterine (F); CD rats. Multiple malignant tumors [liver (M & F) & lung/bronchiolar tumors (M)]; CD-1 mice.	2.4 E-3 (2/3) (M) 1.2 E-3 (2/3) (F)	
MGK-264 CAS No. 113-48-4 EPA Chem Code: 057001	C	Statistically significant increases in hepatocellular adenomas; CD-1 mice (M & F). Statistically significant increases for thyroid follicular cell adenomas; Crl:CDBR rats (M).		
Comments: HCPRC recommended that for the purposes of risk characterization, the Reference Dose (RfD) approach should be used for quantitation of human risk.				
MON 21200 (Genesis) CAS No. 82697-71-0 EPA Chem Code: 128726	C	Statistically significant increase in histiocytic sarcomas (F); CD-1 mice.		
Comments: HCPRC recommended for the purpose of risk characterization, the RfD approach should be used for quantitation of human risk.				
Malathion CAS No. 121-75-5 EPA Chem Code: 057701	D 3 (IARC)	Thyroid C-Cell adenoma; F344 rat (M & F).	1.52 E-3 (3/4)	
Comments: New carcinogenicity classification pending.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Maleic hydrazide CAS No. 5716-15-4 EPA Chem Code: 051502	E			
Mancozeb CAS No. 8018-01-7 EPA Chem Code: 014504	B2	Thyroid follicular cell adenomas & carcinomas, combined thyroid follicular cell adenomas and/or carcinomas; Crl:CD(BR) rats (M & F).	USE ETU Q*	
Maneb CAS No. 12427-38-2 EPA Chem Code: 014505	B2	Thyroid follicular cell adenomas & carcinomas, combined thyroid follicular cell adenomas and/or carcinomas; Crl:CD(BR) rats (M & F).	USE ETU Q*	
Melamine CAS No. 108-78-1 EPA Chem Code:	Not amenable to classification	Transitional cell carcinomas of the urinary bladder; F344/N rats (M).		
Comments: HCPRC concluded that Melamine was not amenable to classification using the current Agency guidelines. Based on a mechanistic evaluation of the only tumors seen it appears that humans are not likely to be exposed to doses of Melamine that produce the urinary tract toxicity that precedes & seems to lead to the carcinogenic response in rats. In particular, anticipated human dietary & occupational exposure to the parent compound, Cyromazine, is estimated to produce Melamine concentrations far below the NOEL in rats for the apparent urinary tract tumor precursors. HCPRC concluded that it is unlikely that Melamine exposure would pose a carcinogenic hazard to humans from a pesticidal usage of Cyromazine.				
Mepiquat chloride CAS No. 24307-26-4 EPA Chem Code: 109101	E			
Mercaptobenzothiazole, 2- CAS No. 149-30-4 EPA Chem Code: 051701	C	Adrenal gland tumors (M & F), some evidence of preputial gland tumors (M) & equivocal evidence for pituitary gland tumors (M); F344/N rats.		
Comments: HCPRC recommended that for the purpose of risk characterization the Reference Dose (RfD) approach should be used for quantification of human risk. [Syn. MBT]				
Mercury (Inorganic) CAS No. 7439-97-6 EPA Chem Code: 052301	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Metalaxyl CAS No. 57837-19-1 EPA Chem Code: 113501	E			
Comments: Chemical will be re-evaluated when genotoxicity studies are reviewed.				
Metam sodium CAS No. 137-42-8 EPA Chem Code: 039003	B2	Malignant angiosarcomas (by both pair-wise & trend analysis); C57BL/10JfCD-1/Alpk mice (M & F). Malignant hemangiosarcomas; Hsd/Ola: Wistar rats (M).	1.98 E-1 (3/4)	

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Methamidophos (Monitor) CAS No. 10265-92-6 EPA Chem Code: 101201	E			
Methidathion CAS No. 950-37-8 EPA Chem Code: 100301	C	Liver tumors (benign and malignant); CD-1 mice (M).		C
Methiocarb (Mesurol) CAS No. 2032-65-7 EPA Chem Code: 100501	D			
Comments: Assessment based on the lack of a second carcinogenicity study in another species.				
Methomyl CAS No. 16752-77-5 EPA Chem Code: 090301	Not Likely			
Methoxychlor CAS No. 72-43-5 EPA Chem Code: 034001	D (CRAVE) 3 (IARC)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inconclusive data in animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Methyl bromide CAS No. 74-83-9 EPA Chem Code: 053201	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviewed this chemical. [Syn. Bromomethane]				
Methyl ethyl ketone (MEK) CAS No. 78-93-3 EPA Chem Code: 044103	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Methylene bis(thiocyanate) CAS No. 6317-18-6 EPA Chem Code: 068102	D	Benign adrenal pheochromocytomas in M and pituitary adenomas in F; Sprague-Dawley rats. Alveolar/bronchial adenomas & carcinomas; CD-1 mice (M & F). [All lesions were within historical control range].		
Comments: RFDC based classification on inadequacy of the data set and on what was considered to be a border line significance of the tumors observed in rats & mice.				
Methylphenol, 3- CAS No. 108-39-4 EPA Chem Code: 022102	C (CRAVE)	Increased incidence of skin papillomas in mice in an initiation-promotion study.		C
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical. [Syn. meta-Cresol]				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Metolachlor CAS No. 51218-45-2 EPA Chem Code: 108801	C	Liver adenomas and combined adenomas/carcinomas; Charles River CD (SD)BR rats (F). [Same liver neoplasia in female rats was also observed in a separate repeat study].		C
Comments: HCPRC recommended that a Margin of Exposure (MOE) methodology be used for the estimation of human risk.				
Metribuzin (Sencor) CAS No. 21087-64-9 EPA Chem Code: 101101	D	Pituitary adenomas; SPF Wistar rats (F)		D
Comments: Note: 1993 rat study in Fischer CDF(F-344)/ BR rats was negative. Chemical structurally related to Ethiozin, which was associated with thyroid cell adenomas & combined adenomas/carcinomas in Fischer 344 rats (M & F).				
Mirex CAS No. 2385-85-5 EPA Chem Code: 039201	2B (IARC)			
Molinate (Ordram) CAS No. 2212-67-1 EPA Chem Code: 041402	C(q)	Statistically significant increase in combined adenomas & carcinomas in the kidney; Crl:CD(SD)BR rat (M). There was equivocal evidence that Molinate induced an increase in testicular tumors.	1.1 E-1 (2/3)	
Comments: HCPRC recommended for the purpose of risk characterization, a low dose extrapolation model applied to the experimental animal tumor data should be used for quantification of human risk (Q1*).				
Myclobutanil (Systane/Rally) CAS No. 88671-89-0 EPA Chem Code: 128857	E			
Naled (Dibrom) CAS No. 300-76-5 EPA Chem Code: 034401	E			
Naptalam (Alanap-1) CAS No. 132-66-1 EPA Chem Code: 030702	D			
Comments: Assessment based on the lack of an adequate mouse carcinogenicity study. Naptalam is currently registered as a low volume/minor use chemical. If exposure or use pattern changes, a new mouse study maybe required.				
Naptalam, sodium salt CAS No. 132-67-2 EPA Chem Code: 030703	D			
Comments: Assessment based on the lack of an adequate mouse carcinogenicity study. Naptalam is currently registered as a low volume/minor use chemical. If exposure or use pattern changes, a new mouse study maybe required.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Nicosulfuron (Accent) CAS No. 111991-09-4 EPA Chem Code: 129008	E			
Nitrapyrin CAS No. 1929-82-4 EPA Chem Code: 069203	D	Renal tubular adenomas & adenocarcinomas; Fischer 344 rats (M).		
Comments: HCPRC recommended a new mouse carcinogenicity study be conducted.				
Nitrobenzene CAS No. 98-95-3 EPA Chem Code: 056501	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemcial.				
Nitrofen (TOK) CAS No. 1836-75-5 EPA Chem Code: 038201	2B (IARC)			
Norflurazon CAS No. 27314-13-2 EPA Chem Code: 105801	C	Liver adenomas & combined liver adenomas & carcinomas; CD-1 mice (M)		
Comments: HCPRC recommended that for the purposes of risk characterization the Reference Dose (RfD) approach should be used for the quantification of human risk.				
Orthophenylphenol & Na salt CAS No. 90-43-7 EPA Chem Code: 064103	B2 2B (IARC)	Multiple tumor types in multiple studies. Malignant urinary bladder & kidney tumors (M); Papillomas of the urinary bladder & uterine endometrium (F); F344/DuCrj & F344 rats.		
Oryzalin CAS No. 19044-88-3 EPA Chem Code: 104201	C(q)	Multiple sites (thyroid, mammary); F344 rats (M & F).	1.3 E-1 (2/3)	C
Oxadiazon CAS No. 19666-30-9 EPA Chem Code: 109001	C(q)	Liver tumors (malignant, combined malignant & benign); CD CD-1 mice (M & F).	1.4 E-1 (2/3)	Deferred
Oxadixyl (San 371F) CAS No. 7732-09-3 EPA Chem Code: 126701	C(q)	Hepatocellular adenomas (by pair-wise comparison & with a dose-related trend); Han-Wistar rats (M & F).	5.3 E-2 (2/3)	Deferred
Oxamyl (Vydate) CAS No. 23135-22-0 EPA Chem Code: 103801	Not Likely			

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Oxyfluorfen (Goal) CAS No. 42874-03-3 EPA Chem Code: 111601	C(q)	Liver (adenomas, carcinomas & combined adenomas and/or carcinomas); CD-1 mice (M).	7.32 E-2 (3/4)	
Oxytetracycline CAS No. 2058-46-0 EPA Chem Code: 006308	D			
Oxythioquinox (Morestan) CAS No. 2439-01-2 EPA Chem Code: 054101	B2	Lung tumors; NMRI mice (M). Hepatocellular tumors (M & F) and rare kidney tumors (F); F344 rats. Data showing chemical has clastogenic acticity provided additional support.	3.42 E-2 (3/4)	
Comments: HCPRC recommended for the purpose of risk characterization, a low dose extrapolation model be applied to animal data for the quantification of human risk, based on total kidney tumors (combined adenoma/carcinoma).				
Paclobutrazol CAS No. 76738-62-0 EPA Chem Code: 125601	D	Benign stromal polpys (F); Leydig cell tumors (M); Sprague-Dawley Crl:CD(SD)BR rats.		
Comments: The RFDC noted that new carcinogenicity studies may be required if the current use pattern changes (i.e. food uses or uses which are in the high exposure category & require carcinogenicity data).				
Paradichlorobenzene CAS No. 106-46-7 EPA Chem Code: 061501	C	Liver (adenomas and carcinomas); B6C3F1 mice (M & F).		
Paranitrophenol CAS No. 100-02-7 EPA Chem Code: 056301	D			
Comments: Classification based on inadequacy of the data base, i.e. lack of carcinogenicity data in a second animal species.				
Paraquat dichloride CAS No. 1910-42-5 EPA Chem Code: 061601	E			C
Comments: OPP to reevaluate when new data on powdered diet are submitted. SAP concerned with nasal squamous cell carcinoma seen in Fischer 344 rats (M).				
Parathion (Ethyl parathion) CAS No. 56-38-2 EPA Chem Code: 057501	C 3 (IARC)	Adrenal cortical tumors (adenomas + carcinomas; Thyroid follicular cell adenomas & pancreatic cell carcinomas; Osborne-Mendel rat (M) Benign pancreatic tumors; Wistar rat (M)		C
Comments: The Committee concluded that Parathion be classified as a Group C without quantification, which is to say without the use of a low dose extrapolation model (Q1*) for quantitative risk assessment; instead a Reference Dose (RfD) approach will be used.				
Pendimethalin CAS No. 40487-42-1 EPA Chem Code: 108501	C	Thyroid follicular cell adenomas; Sprague-Dawley rats (M & F).		
Comments: HCPRC recommended that for the purpose of risk characterization the Reference Dose (RfD) approach should be used for quantification of human risk.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Pentachloronitrobezene CAS No. 82-68-8 EPA Chem Code: 056502	C	Thyroid follicular cell adenomas (by both pair-wise and trend analysis) in males with a positive trend in females; CD rats.		
Comments: HCPRC recommended that for the purpose of risk characterization the Reference Dose (RfD) approach should be used for quantification of human risk. [Syn. PCNB]				
Pentachlorophenol CAS No. 87-86-5 EPA Chem Code: 063001	B2 3 (IARC)	Hepatocellular adenomas & carcinomas, adrenal medulla pheochromocytomas & malignant pheochromocytomas, &/or hemangiosarcomas & hemangiomas in one or bothe sexes of B6C3F1 mice.	1.29 E-1 (2/3)	B2
Comments: CRAVE Q* = 1.2 E-1 (O).				
Permethrin CAS No. 52645-53-1 EPA Chem Code: 109701	C(q) 3 (IARC)	Lung (adenomas & combined adenomas/carcinoma); Liver (adenoma); CD-1 mice (F).	1.84 E-2 (2/3)	Pending
Phenmedipham (Betanal) CAS No. 13684-63-4 EPA Chem Code: 098701	D			
Comments: RFDC considered the dose levels in both carcinogenicity studies (rat & mouse) to be inadequate.				
Phenol CAS No. 108-95-2 EPA Chem Code: 064001	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Phorate (Thimet) CAS No. 298-02-2 EPA Chem Code: 057201	E			
Comments: OPP requests a 90-day study in mice to determine whether the doses in the mouse carcinogenicity study would inhibit ChE in plasma, RBC or brain or cause other toxic effects.				
Phosmet (Imidan) CAS No. 732-11-6 EPA Chem Code: 059201	C	Liver tumors (adenomas & adenomas + carcinomas combined) (M); Trend for liver adenomas & carcinoma (F); B6C3F1 mice.		
Comments: HCPRC recommended that for the purpose of risk characterization the Reference Dose (RFD) approach should be used for quantification of human risk.				
Phosphamidon CAS No. 13171-21-6 EPA Chem Code: 018201	C	Bladder transitional cell carcinoma; Hepatocellular carcinoma; Sprague-Dawley rats (M).		
Comments: Quantification of oncogenicity risk was not recommended since the evidence is limited & the oncogenic response was confined to one sex of one strain of one species. Furthermore, the increase in the incidence of tumors were not statistically significant by pairwise comparison.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Phosphine CAS No. 7803-51-2 EPA Chem Code: 066500	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inadequate data in animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Phostebupirim (Bay mat 7484) CAS No. 96182-53-5 EPA Chem Code: 129806	E			
Picloram (+ salts) CAS No. 1918-02-1 EPA Chem Code: 005101	E			
Piperonyl butoxide CAS No. 51-03-6 EPA Chem Code: 067501	C	Increased incidence of hepatocellular tumors (M & F) (adenomas, carcinomas, combined adenomas/carcinomas in M & adenomas in F; CD-1 mice.		
Comments: HCPRC recommended that for the purpose of risk characterization, the Reference Dose (RfD) approach should be used for quantitation of human risk.				
Polychlorinated biphenyls CAS No. 1336-36-3 EPA Chem Code: 017801	B2 (CRAVE)	Hepatocellular carcinomas; Fischer 344, Sprague-Dawley & Wistar rat; dd & BALB/cJ mice. Inadequate yet suggestive evidence of excess risk of liver cancer in humans by ingestion, inhalation or dermal contact.	7.7 E+0	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Prallethrin (ETOC) CAS No. 23031-36-91 EPA Chem Code: 128772	E			
Primisulfuron-methyl CAS No. 86209-51-0 EPA Chem Code: 128973	D	Hepatocellular adenomas & carcinomas; CD-1 mice (M & F). [The two dose levels were these tumors occurred were excessively toxic]		
Comments: HCPRC did not recommend to repeat the mouse study. [Syn. Beacon].				
Prochloraz CAS No. 67747-09-5 EPA Chem Code: 128851	C(q)	Hepatocellular adenoma & carcinoma, combined adenoma/carcinoma; CD-1 (M & F).	1.5 E-1 (2/3)	C
Procymidone (Sumilex) CAS No. 32809-16-8 EPA Chem Code: 129044	B2	Interstitial cell adenoma (M); Pituitary adenoma (F); Osborne-Mendel rats. Liver adenomas & combined adenomas/carcinomas; B6C3F1 mice (F). Additionally, a rare variant of hepatocellular carcinoma, hepatoblastoma, had a significant increasing trend in M B6C3F1 mice.	2.35 E-2 (2/3) 1.92 E-2 (2/3)	
Comments: For the purpose of risk characterization, a low dose extrapolation model applied to the experimental animal tumor data was recommended for quantification of human risk (Q1*). A quantification of risk is recommended for the testicular tumors in male rats and for the liver tumors in female mice. The Q1* values are based on female mouse & male rat, respectively.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Prodiamine (Rydex) CAS No. 29091-21-2 EPA Chem Code: 110201	C	Thyroid follicular cell neoplasia; Pancreatic adenomas; Sprague-Dawley rats (M & F). Fibrosarcomas; CD-1 mice (M).		
Comments: HCPRC recommended for the purpose of risk characterization that the Reference Dose (RfD) approach should be used for quantification of human risk. The recommendation to use the RfD approach was based upon several factors including the absence of genotoxicity, the nature of the response (benign thyroid follicular cell tumors), and the lack of clear neoplastic response at sites other than the thyroid.				
Profenofos (Curacron) CAS No. 41198-08-7 EPA Chem Code: 111401	E			
Prometon CAS No. 1610-18-0 EPA Chem Code: 080804	D	Mammary tumor; Sprague-Dawley rats (F)		
Prometryn CAS No. 7287-19-6 EPA Chem Code: 080805	E			
Pronamide (Kerb) CAS No. 23950-58-5 EPA Chem Code: 101701	B2	Benign testicular interstitial cell tumors (M); Uncommon thyroid follicular cell adenomas (M&F); Crl:CD(SD)BR rats. Hepatocellular carcinomas; B6C3F1 mice (M).	1.54 E-2 (2/3)	
Comments: Q1* will be based on the incidence of liver tumors.				
Propachlor CAS No. 1918-16-7 EPA Chem Code: 019101	Likely	Multiple tumors/multiple sites; Rare stomach tumor; Fischer 344 rat (M); Thyroid tumors & granulosa/theca cell tumors; Sprague-Dawley rats (M & F). Hepatocellular tumors; CD-1 mice (M).		
Comments: A linear low-dose approach for human risk characterization & extrapolation of risk should be based on both neoplastic [ovarian tumors (rats) & liver tumors (M mice)] & non-neoplastic (liver hypertrophy (mice) lesions.				
Propamocarb hydrochloride CAS No. 25606-41-1 EPA Chem Code: 119302	D			
Comments: RFDC considered the carcinogenicity phase of the rat study to be unacceptable. The mouse carcinogenicity study was also considered unacceptable.				
Propargite (Omite) CAS No. 2312-35-8 EPA Chem Code: 097601	B2	Statistically significant increases in undifferentiated sarcomas in the jejunum; Crl:CDBR rat (M & F).	1.71 E-2 (3/4)	
Comments: HCPRC determined the mouse carcinogenicity study to be inadequate. However a new study is not required.				
Propazine CAS No. 139-40-2 EPA Chem Code: 080808	C(q)	Statistically significant increases in mammary gland adenomas, carcinomas and combined adenomas/carcinomas; Sprague-Dawley rat (F).	4.45 E-2 (3/4)	
Comments: HCPRC recommended that for the purpose of risk characterization a low-dose extrapolation methodolgy (Q1*) be applied to the animal data.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Propetamphos CAS No. 31218-83-4 EPA Chem Code: 113601	Not Likely			
Propiconazole (Banner/Tilt) CAS No. 60207-90-1 EPA Chem Code: 122101	C	Hepatocelluar adenomas, carcinomas, & adenomas/carcinomas combined; CD-1 mice (M).	1.79 E-2 (3/4)	Pending
Comments: For the purpose of risk characterization HCPRC recommended that the Reference Dose approach should be used for quantification of human risk. This decision was based on the new data submitted (90 day studies) which showed excessive toxicity at the high dose (2500 ppm); however, the middle dose (500 ppm) was not considered sufficiently high for assessing the carcinogenic potential of Propiconazole.				
Propylene oxide CAS No. 75-56-9 EPA Chem Code: 042501	B2 (CRAVE)	Benign & malignant tumors at the site of exposure when exposed by subcutaneous injections (NMRI mice), by inhalation (F344/N, CpB:WU Wistar rats & B6C3F1 mice) & by gavage (Sprague-Dawley rats).	2.4 E-1 (O) 3.7 E-6 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Prosulfuron (CGA-152005) CAS No. 94125-34-5 EPA Chem Code: 129031	D	Mammary gland adenomas & adenocarcinomas (F); Interstitial cell tumors (M); Crl:CD(SD)BR rats.		
Pyrethrins CAS No. 121-21-1 EPA Chem Code: 069001	Likely	Liver tumors (F); Thyroid tumors (M & F); Charles River CD rats	5.14 E-3 (3/4)	
Pyridaben CAS No. 96489-71-3 EPA Chem Code: 129105	E			
Pyrimethanil CAS No. 53112-28-0 EPA Chem Code: 288201	C	Thyroid follicular cell adenomas & combined adenoma/carcinoma (M); Thyroid cell adenomas (F); Sprague-Dawley rats.		
Comments: HCPRC recommended that a MOE methodology be used for the estimation of human risk. The MOE methodology was selected because the thyroid tumors associated with admistration of Pyrimethanil in Sprague-Dawley rats may be due to a disruption in the thyroid-pituitary status.				
Pyriproxyfen (Sumilarv) CAS No. 95737-68-1 EPA Chem Code: 129032	E			
Pyrithiobac-sodium CAS No. 123343-16-8 EPA Chem Code: 078905	C(q)	Liver adenomas, carcinomas & combined adenoma/carcinoma; CD-1 mice (M). Rare kidney tubular adenomas, carcinomas & combined adenoma/carcinoma; Crl:CDBR rats.	1.05 E-3 (3/4) 1.25 E-2 (3/4)	
Comments: The HCPRC recommended a low-dose extrapolation model be applied to the animal data for the quantification of human risk (Q1*), for both the combined liver tumors in the male mouse (second Q1* value) and the combined kidney tumors in the male rat (first Q1* value).				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Quinclorac (Facet) CAS No. 84087-01-4 EPA Chem Code: 128974	D	Equivocal increase in pancreatic acinar cell adenomas; Wistar rats (M).		
Quizalofop ethyl (Assure) CAS No. 76578-14-8 EPA Chem Code: 128201	D	Liver (adenomas & carcinomas combined); CD-1 mice (M).		D
Comments: HCPRC concluded that limitations in the data from the mouse study precluded an accurate interpretation of carcinogenic risk. No new animals studies are required.				
Rimsulfuron (DPX-E9636) CAS No. 122931-48-0 EPA Chem Code: 129009	E			
Rotenone CAS No. 83-79-4 EPA Chem Code: 071003	E			Deferred
Selenium and compounds CAS No. 7782-49-2 EPA Chem Code: 072001	D (CRAVE)			D
Comments: Assessment based on inadequate human data & inadequate evidence of carcinogenicity in animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Silver CAS No. 7440-22-4 EPA Chem Code: 072501	D (CRAVE)	In animals, local sarcomas have been induced after implantation of foils & discs silver. Interpretation of these findings has been questions due to the phenomenon of solid-state carcinogensis.		D
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Silvex (2,4,5-TP) CAS No. 93-72-1 EPA Chem Code: 082501	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviewed this chemical. [Syn. Trichlorophenoxypropionic acid, 2,4,5-]				
Simazine CAS No. 122-34-9 EPA Chem Code: 080807	C(q) 3 (IARC)	Pituitary gland carcinomas; Mammary gland carcinomas; Sprague-Dawley rats (F).	1.2 E-1 (2/3)	Pending
Sodium omadine CAS No. 15922-78-8 EPA Chem Code: 088004	D			
Comments: RFDC considered the mouse study to be inadequate.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Spinosad (XDE-105) CAS No. 131929-60-7 EPA Chem Code: 110003	Not Likely			
Sulfallate CAS No. 95-06-7 EPA Chem Code: 039001	2B (IARC)	Mammary gland tumors (F), Lung tumors (M); B6C3F1 mice. Mammary gland tumors (F); Malignant tumors of the forestomach (M); Osborne-Mendel rats.		
Sulfentrazone CAS No. 122836-35-5 EPA Chem Code: 129081	E			
Sulfosulfuron [MON 31500] CAS No. 141776-32-1 EPA Chem Code: 085601	Likely	Rare transitional cell papilloma & carcinoma of the urinary bladder in females; Sprague-Dawley rats. Rare mesenchymaltumors of the urinary bladder in male as well as renal adenomas in male and female mice; CD-1	1.03 E-3 (3/4)	
Comments: The Committee recommended that a linear low-dose approach (Q1*) for human risk characterization and extrapolation of risk should be based on the incidence of benign mesenchymal tumors in male mice. This extrapolation, rather than an MOE approach, is warrented due to lack of data on mode of action.				
Sulprofos (Merafos/Bolstar) CAS No. 35400-43-2 EPA Chem Code: 111501	E			
TCMTB (Busan 72) CAS No. 21564-17-0 EPA Chem Code: 035603	C	Testicular interstitial cell adenomas (M); Thyroid c-cell adenomas (F); Sprague-Dawley rats.		
Comments: HCPRC recommended that for the purpose of risk characterization, the RfD approach should be used for quantitation of human risk.				
Tebuconazole (Folicur) CAS No. 107534-96-3 EPA Chem Code: 128997	C	Statistically significant increase in the incidence of hepatocellular adenomas, carcinomas & combined adenomas/carcinomas both by positive trend & pairwise comparisons; NMRI mice (M & F).		
Comments: HCPRC recommended that for the purpose of risk characterization ther Reference Dose (RfD) approach should be used for quantification of human risk.				
Tebufenozide CAS No. 5902-51-2 EPA Chem Code: 129026	E			
Tebuthiuron CAS No. 34014-18-1 EPA Chem Code: 105501	D			
Comments: RFDC considered the two mouse studies to be of supplementary nature. Dose levels were inadequate for carcinogenicity testing; however tumor profile was not altered. A new study is not considered necessary at this time.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Terbacil CAS No. 5902-51-2 EPA Chem Code: 012701	E			
Terbufos CAS No. 13071-79-9 EPA Chem Code: 105001	E			
Terbuthylazine CAS No. 5915-41-3 EPA Chem Code: 080814	D	Benign interstitial cell tumors of the testes (M), mammary gland carcinomas (F); Tif:RAIF rats.		
Comments: Assessment based on statistically significant increases in tumors in the rat, only at a dose which the HCPRC considered excessively toxic, but which were the same tumor types induced by closely related analogs.				
Terbutryn CAS No. 886-50-0 EPA Chem Code: 080813	C	Mammary (adenomas/adenocarcinomas); Liver (adenomas/carcinomas) (F); Thyroid follicular (adenomas/carcinomas); Testicular interstitial cell adenoma (M); CR CD-1 mice.		
Terrazole CAS No. 2593-15-9 EPA Chem Code: 084701	B2	Multiple tumors (liver, bile duct, mammary gland, thyroid & testes) & cholangiocarcinoma (a rare tumor); Sprague-Dawley rats (M & F).	7.2 E-2 (M)	
Tetrachloroethane, 1,1,2,2- CAS No. 79-34-5 EPA Chem Code: 078601	C (CRAVE)	Hepatocellular carcinomas; B6C3F1 mice (M & F).	2.0 E-1 (O) 5.8 E-5 (I)	C
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Tetrachlorvinphos (Gardona) CAS No. 961-11-5 EPA Chem Code: 083701	C(q)	Hepatocellular carcinomas & combined adenomas/carcinomas; B6C3F1 mice (F). Thyroid C-cell adenomas & adrenal pheochromocytomas; Sprague-Dawley rats (M).	1.83 E-3 (3/4)	
Tetramethrin CAS No. 7696-12-0 EPA Chem Code: 069003	C	Interstitial cell adenomas in the testes (M); CR CD-1 & CRCD Sprague-Dawley, Long-Evans Hooded rats.		
Comments: Quantitative estimation of potential human risk was not recommended.				
Thallium(I) sulfate CAS No. 7446-18-6 EPA Chem Code: 080001	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Thiafluamide (FOE 5043) CAS No. 142459-58-3 EPA Chem Code: 121903	Not Likely			

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Thiazopyr (MON 13200) CAS No. 117718-60-2 EPA Chem Code: 129100	C	Statistically significant increase in thyroid follicular cell tumors (M). Increases in renal tubular adenomas (M & F); however statistically significant positive trend in F only; Sprague-Dawley rats.		
Comments: HCPRC recommended that for the purpose of risk characterization a Margin of Exposure (MOE) approach should be used for evaluation of the consequences of human exposure.				
Thiobencarb (Bolero) CAS No. 28249-77-6 EPA Chem Code: 108401	D	Adenomas & carcinomas of the haderian gland; B6C3F1 mice (F).		
Comments: RFDC concluded that the chemical should be classified Group D based on the possible potential of carcinogenic response which could not be ascertained or dismissed using the existing mouse data.				
Thiodicarb (Larvin) CAS No. 59669-26-0 EPA Chem Code: 114501	B2	Liver tumors (malignant & benign); CD-1 mice (M & F). Testicular interstitial cell tumors; Sprague-Dawley rat (M).	1.88 E-2 (3/4)	
Comments: HCPRC recommended that for the purpose of risk characterization, a Margin of Exposure (MOE) methodology be used for the estimation of human risk, based on hepatocellular combined adenoma/carcinoma in male mice.				
Thiophanate-methyl CAS No. 23564-05-8 EPA Chem Code: 102001	Likely to be carcinogenic to humans	Hepatocellular adenomas (M & F); Combined adenomas, carcinomas and/or hepatoblastomas (M); CD-1 mice. Thyroid follicular cell adenomas (M & F); Thyroid follicular cell carcinomas as well as combined adenomas and/or carcinomas (M); F344 rats.	2.08 E-3 (3/4)	
Comments: For human risk characterization, CARC recommended the extrapolation of risk using the linear low-dose (Q1*) default approach for liver tumors. This extrapolation was supported by the lack of confirmation of the mode of action, concern for mutagenicity & dose-dependent increases in the incidence of liver tumors in male and female mice.				
Toluene CAS No. 108-88-3 EPA Chem Code: 080601	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviewed this chemcial.				
Toxaphene (Campechlor) CAS No. 8001-35-2 EPA Chem Code: 080501	B2 (CRAVE)	Hepatocellular carcinomas & neoplastic nodules (adenomas); B6C3F1 B6C3F1 mice (M & F). Thyroid tumors (adenomas & carcinomas); Osborne-Mendel rats (M & F).	1.1 E+0 (O) 3.2 E-4 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Tralkoxydim CAS No. 87820-88-0 EPA Chem Code: 121000	Likely	Benign Leydig cell tumors at all dose levels with the incidences at the high dose exceeding the concurrent & historical control; Wistar rats (M).	1.68 E-2 (3/4)	
Comments: Committee recommended that a linear low-dose (Q1*) for human risk characterization & extrapolation of risk should be based on the occurrence of Leydig cell tumors of the testes in male rats at all dose levels.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Triadimefon (Bayleton) CAS No. 43121-43-3 EPA Chem Code: 109901	C	Borderline statistically significant increase thyroid adenomas; Wistar rats (M). Hepatocelular adenomas; NMRI mice (M & F).		
Comments: HCPRC concluded that for the purpose of risk characterization, the RfD approach should be used for quantification of human risk.				
Triadimenol (Baytan) CAS No. 55219-65-3 EPA Chem Code: 127201	C	Liver (hepatocellular adenomas); CF1/W74 mice (F).		
Triallate CAS No. 2303-17-5 EPA Chem Code: 078802	C(q)	Hepatocellular carcinomas (M); Positive trend & a boderline significant increase in these tumors in females; B6C3F1 mice. Increased incidence of renal tubular cell adenoma (rare tumor type); Sprague-Dawley rat (M) [Considered biologically significant although no absolute pair-wise statistical significance was found].	7.17 E-2 (3/4)	
Comments: HCPRC requested that the female mouse carcinogenicity study be repeated because the dosing was inadequate; the results are considered critical to the ultimate classification of Triallate. If the Registrant chooses to repeat the study, the decision on quantification risk will be deferred until completion & evaluation of the new study. However, if the Registrant decides not to repeat the study, the existing low dose extrapolation (Q1*) based on the tumor data in the male mouse will be applied.				
Triasulfuron (Amber) CAS No. 82097-50-5 EPA Chem Code: 128985	E			
Tribenuron methyl (Express) CAS No. 101200-48-0 EPA Chem Code: 128887	C	Mammary gland adenocarcinomas; Sprague-Dawley rats (F).		Pending
Comments: The oncogenic response observed may be associated with a hormonal imbalance that may not occur at doses below an MTD. HCPRC conclued that a quantitative risk assessment is not appropriate because the increased incidence of mammary gland tumors was observed in female rats treated at dose levels exceeding the MTD, there was no evidence of genetic toxicity shown in several studies, and structural analogs of Express (other than Atrazine) were not associated with oncogenic responses in rats and mice.				
Tribufos (Tribuphos/DEF) CAS No. 78-48-8 EPA Chem Code: 074801	Likely (high doses) Unlikely (low doses)	Liver (hemangiosarcoma) (M), Lung (alveolar/bronchiolar adenoma) (F), Small intestine (adenocarcinoma) (M & F); CD-1 mice.	2.39 E-1 (3/4)	
Comments: A non-linear approach (MOE) using the most sensitive toxic endpoint considering all species tested was recommended for the purpose of risk characeterization.				
Trichlorfon (Trichlorphon) CAS No. 52-68-6 EPA Chem Code: 057901	Not likely to be carcinogenic at low doses, but likely to be carcinogenic at high doses	Tumors of the kidneys (adenomas) in male F344 rats & tumors of the lungs in both sexes (adenomas/carcinomas in M; carcinomas in F). Mammary tumors in female CD-1 mice.		
Comments: Tumors in rats and mice were observed at dose levels that were considered excessively toxic (Rats: increased mortality, ChE inhibition, non-neoplastic histopathological changes; Mice: increased mortality and ChE inhibition). None of the tumors was considered to be relevant for human risk assessment because they were seen only at doses that were excessively toxic.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Trichlorobenzene, 1,2,4- CAS No. 120-82-1 EPA Chem Code: 081101	D (CRAVE)			D
Comments: Assessment based in lack of data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Trichloroethane, 1,1,1- CAS No. 71-55-6 EPA Chem Code: 081201	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Trichloroethane, 1,1,2- CAS No. 79-00-5 EPA Chem Code: 081203	C (CRAVE)	Hepatocellular carcinomas (M & F) and pheochromocytomas (F); B6C3F1 mice.	5.7 E-2 (O) 1.6 E-5 (I)	C
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Trichlorophenol, 2,4,6- CAS No. 88-06-2 EPA Chem Code: 064212	B2 (CRAVE)	Lymphomas or leukemias; F344 rats (M). Hepatocellular adenomas or or carcinomas; B6C3F1 mice (M & F).	1.1 E-2 (O) 3.1 E-6 (I)	B2
Comments: This assessment is located on IRIS. OPP has not reviewed this chemical.				
Triclopyr (salts & esters) CAS No. 55335-06-3 EPA Chem Code: 116001	D	Classification based on increases in mammary tumors in rats (Fischer 344) & mice (Jcl:ICR), and adrenal pheochromocytomas in male rats, which the majority of the HCPRC believed to be only marginal.		
Triclosan (Irgasan) CAS No. 3380-34-5 EPA Chem Code: 054901	Not classifiable			
Comments: The Committee was unable to assign a carcinogenicity classification to Triclosan, due to the lack of a second study in a second species.				
Tridiphane (Tandem) CAS No. 58138-08-2 EPA Chem Code: 123901	C	Liver (hepatocellular adenomas, adenomas/carcinomas combined); B6C3F1 mice (F).		
Triflumizole CAS No. 08694-11-1 EPA Chem Code: 128879	E			
Trifluralin (Treflan) CAS No. 1582-09-8 EPA Chem Code: 036101	C(q) 3 (IARC)	Thyroid (follicular cell adenomas & carcinomas); Neoplasms of the renal pelvis (M); Benign urinary bladder tumors (F); Fischer 344 rats.	7.7 E-3 (2/3)	C
Comments: CRAVE Q* = 7.7 E-3				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Triflusulfuron-methyl CAS No. 126535-15-7 EPA Chem Code: 129002	C	Testicular interstitial cell adenomas; CD-1 rat (M).		
Comments: HCPRC recommended that for the purpose of risk characterization, the Reference Dose (RfD) approach should be used for quantitation of human risk.				
Triphenyltin hydroxide CAS No. 76-87-9 EPA Chem Code: 083601	B2	Pituitary gland adenoma (F); Leydig cell tumors (M); Wistar rat. Hepatocellular adenomas (M & F); combined hepatocelluar (adenomas and/or carcinoma) (F); NMRI mice.	1.83 E+0 (3/4)	
Troysan polyphase (IPBC) CAS No. 55406-53-6 EPA Chem Code: 107801	Not Likely			
UDMH CAS No. 57-14-7 EPA Chem Code: 600018	B2	Multiple sites (eg. lungs, vessels, liver & kidney); Multiple species, strains & studies.	4.6 E-1 (2/3) (M) 3.1 E-1 (2/3) (F)	
Comments: UDMH is the metabolite/breakdown product of Daminozide (Alar). [Syn. unsymmetrical 1,1-dimethylhydrazine]				
UMP-488 (PAL 6000) CAS No. 111578-32-6 EPA Chem Code: 129025	E			
Uniconazole (Prunit) CAS No. 83657-22-1 EPA Chem Code: 128976	C	Hepatocellular adenomas, carcinomas & adenomas/carcinomas combined; CD-1 mice (M).		
Comments: Quantification of potential human cancer risk, using the low dose extrapolation model (Q1*) was not recommended. Therefore, the Reference Dose (RfD) approach will be used for the quantification of potential human risk.				
Vinclozolin CAS No. 50471-44-8 EPA Chem Code: 113201	C	Leydig cell adenomas; Wistar rats (M)	2.9 E-1 (3/4)	
Comments: For the purpose of risk characterization, a non-linear approach (MOE) based on a NOEL for hormone-related effects, should be used for quantitation of human risk. This was based on the Registrant's submission of preliminary results of a re-evaluation of the pathology slides from the ovary & prostate of the rat; however, it was decided to provisionally accept these data. Based on these data, the only remaining tumor type with increases that were statistically significant was the Leydig cell tumors in rats; although some members felt that the increases in prostate tumors were equivocal, but could not be dismissed.				
White phosphorus CAS No. 7723-14-0 EPA Chem Code: 066502	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans or animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				

CHEMICAL	CURRENT OPP CLASSIFICATION	TUMOR TYPE / SPECIES	POTENCY Q* VALUE	CRAVE CLASS
Xylenes CAS No. 1330-20-7 EPA Chem Code: 086802	D (CRAVE)			D
Comments: Assessment based on lack of data concerning carcinogenicity in humans & inadequate animal data. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Zinc and compounds CAS No. 7440-66-6 EPA Chem Code: 129015	D (CRAVE)			D
Comments: Assessment based on inadequate evidence in humans & animals. This assessment is located on IRIS. OPP has not reviewed this chemical.				
Zineb CAS No. 12122-67-7 EPA Chem Code: 014506	3 (IARC)			